

REMARKS

Claims 1-7 are currently pending. Favorable reconsideration is respectfully requested in view of the remarks presented herein below.

On page 2 of the final Office action ("Action"), the Examiner rejects claims 1-7 under 35 U.S.C. § 103(a) as being unpatentable over Japanese publication no. JP 08-119197A to Morimoto et al. ("Morimoto"), in view of U.S. Patent No. 4,069,784 to Hedstrom et al. ("Hedstrom"). Applicants respectfully traverse this rejection.

In order to support a rejection under 35 U.S.C. § 103, the Examiner must establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness three criteria must be met. First, there must be some rationale to combine the cited references. Second, there must be a reasonable expectation of success. Finally, the combination must teach each and every claimed element. In the present case, claims 1-7 are patentable over the combination of Morimoto and Hedstrom for at least the fact that the combination fails to disclose a rudder angle output device for outputting a command rudder angle where the rudder angle is determined based on a deviation angle measured by a bearing sensor.

In the Action, the Examiner notes that Morimoto fails to disclose that the rudder angle is determined based on a deviation angle measured by a bearing sensor. Therefore, the Examiner relies on the Hedstrom reference to overcome the deficiencies of Morimoto. More specifically, the Examiner asserts that "Hedstrom teaches controlling a rudder steering system by controlling a rudder angle (controlling the yaw of the vehicle by rudder deflection), which is determined based on a deviation angle measured by measuring sensors on board the ship to determine the direction of the ship." To support this assertion, the Examiner points to column 13, lines 38-45 and column 2, line 58 to column 3, line 3 of Hedstrom.

Although Hedstrom discloses a method and system for kinematic steering of a vessel in a yaw path having a given radius of curvature conforming with a predetermined control law, nowhere in Hedstrom is there any disclosure or suggestion of a rudder angle output device for outputting a command rudder angle where the rudder angle is determined based on a deviation angle measured by a bearing sensor as claimed. Contrary to the Examiner's assertion, Hedstrom specifically discloses that the changes in rudder deflection are provided as a result of a control signal supplied to an automatic steering device, where the control signal is a function of one of

the quantities $R_b - R_a$, $R_b^{-1} - R_a^{-1}$, $\omega_b - \omega_a$, $\omega_b^{-1} - \omega_a^{-1}$ and $V - R_b \omega_a$, where R_b is the set radius of path curvature, R_a is the actual radius of path curvature of the ship, ω_b is the set path angular rate, ω_a is the actual path angular rate, V is speed over ground of the vessel. However, nowhere in Hedstrom is there any disclosure of a deviation angle measured by a bearing sensor as claimed.

Since Morimoto and Hedstrom both fail to disclose or suggest a rudder angle output device for outputting a command rudder angle where the rudder angle is determined based on a deviation angle measured by a bearing sensor as claimed, the combination of these two references cannot possibly disclose or suggest said element. Therefore, even if one skilled in the art had some rationale to combine Morimoto and Hedstrom (which Applicants do not concede), the combination would still fail to render claims 1-7 unpatentable because the combination fails to disclose each and every claimed element. Reconsideration and withdrawal of the rejection of claims 1-7 is respectfully requested.

The application is in condition for allowance. Notice of same is earnestly solicited. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Penny Caudle Reg. No. 46,607 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

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